6.5 WATER RESOURCES

The existing conditions in the project area and the water demands for the Canyon Power Plant (CPP) have been evaluated and are presented in this section. The water resources data and information for the area, and the water demand data, were used to identify and evaluate the potential effects of the project on local water resources, and to identify mitigation measures that would reduce potential significant impacts (if any) to a level of insignificance. Details of this evaluation and supporting data are presented below and in Appendices O and R.

The Canyon Power Plant (CPP) will consist of a nominal 200-megawatt (MW) simple-cycle plant, using four natural gas-fired General Electric LM 6000PC Sprint combustion turbines and associated infrastructure. The project site is located at 3071 East Miraloma Avenue, in a City of Anaheim (COA)-designated industrial zone.

The CPP and associated construction laydown areas will be located on approximately 10 acres of disturbed land located at 3071 East Miraloma Avenue. Main access to the CPP site will be at the southeast corner of the project site from East Miraloma Avenue. A second gated entrance will be accessible via East Miraloma Avenue with a third gate off the alley to the east of the site. (Total land disturbance will be approximately 10 acres.)

The existing CPP site is predominantly paved (concrete and asphalt). Principal land use for the site was food catering for a fleet of approximately 75 to 100 trucks, formerly operated by Orange County Food Service. Onsite structures include a kitchen/warehouse building, maintenance garage (9 service bays), truck wash facility (5 bays), two ice manufacturing buildings, several storage sheds, and an outdoor truck repair shop which includes storage lockers and petroleum products, all of which will be demolished as a part of the CPP project.

The following activities are not part of the CPP project:

- Three residential houses along East Miraloma Avenue have recently been removed and are not a part of this Application for Certification (AFC). The COA Risk Manager and Fire Department determined that the residential units posed security and fire risks, and therefore they were removed. A letter from the COA Risk Manager to the Public Utilities Department is included in Appendix Q.
- Soil remediation activities associated with Phase I, Phase II, and Supplemental Phase II reports. The COA, now as owner of the property, has determined that it will conduct any soil remediation activities to limit its environmental liability for future uses of the site. These activities will occur regardless of whether the CPP project obtains a CEC license.
- Installation of a temporary, 8-foot-high security fence around the perimeter of the entire 10-acre site.

- General maintenance activities including site cleanup and trash removal.

The project will include the construction and/or installation of the following components:

- **Proposed CPP site.** In addition to the four natural gas-fired GE LM 6000PC Sprint gas turbines, the plant will include generator step-up transformers (GSUs), a 69 kilovolt (kV) switchyard, onsite fuel gas compressors, a gas pressure control and metering station, a packaged chilled water system for combustion turbine engine (CTG) power augmentation with associated heating ventilation and air conditioning (HVAC)-type four-cell cooling tower, selective catalytic reduction system (SCR) emission control systems, and other associated plant infrastructure.
- **Gas pipeline.** Natural gas will be provided via a new 3,240-foot-long, 12-inch, and 350 pounds per square inch gauge (psig) gas line owned and maintained by SoCal Gas Company (SCGC), which will be connected to new onsite fuel gas compressors that will be part of the CPP facility. From the CPP site, this new pipeline will run approximately 580 feet east in East Miraloma Avenue to Kraemer Boulevard, then north 2,660 feet in Kraemer Boulevard to East Orangethorpe Avenue to connect into SCGC's transmission line L-1218 in East Orangethorpe Avenue. (Total land disturbance will be 0.219 acre.)
- **Process water.** Process water for the project will be recycled water supplied from the Orange County groundwater replenishment system (GWRS) via a new 2,185-foot-long, 14-inch pipeline utilizing a new offsite booster pump station. The water pipeline will run east of the site on the north side of East Miraloma Avenue for 1,850 feet to the new pumping station located north of the curb in the COA-owned easement of East Miraloma Avenue, then north 210 feet in new easement from the Orange County Water District (OCWD), then 125 feet easterly in new easement to the GWRS line on the western side of the Carbon Canyon Diversion Channel. There, it will connect to the 60-inch-diameter GWRS recycled water line at an existing 36-inch stub up. (Total land disturbance for both line and pumping station will be 0.246 acre.)
- **Electrical interconnection.** Underground 69 kV cables will connect from GSUs to the onsite switchyard, which will use gas-insulated switchgear (GIS). There will be four new underground 69 kV circuits leaving the site. Two will proceed underneath and to the south side of East Miraloma Avenue approximately 100 feet to rise up and connect to the existing 69 kV overhead Vermont-Yorba lines via two new transition structures. The second two 69 kV underground circuits will proceed eastward approximately 4,000 feet in East Miraloma Avenue, turn south on Miller, then proceed approximately 3,000 feet to connect to the Dowling-Yorba 69 kV line at East La Palma Avenue. (Total land disturbance for both sets of cables will be 0.489 acre.)
- **Communications.** Fiber optic cable will run in a common trench with the approximately 7,000-foot 69 kV electric cables, where it will tie into existing underground fiber optic cable for the supervisory control and data acquisition (SCADA) system.

6.5.1 Existing Site Conditions

6.5.1.1 Site Location

The site elevation is about 210 feet above mean sea level (msl) and is essentially flat with a slight grade to East Miraloma Avenue on the south. A complete and comprehensive geotechnical investigation study was performed for the site. Fill soils consisting of silty sand in the range of approximately one to two feet thick were encountered in the soil borings. The native soils consist of medium dense to very dense silty sand and poorly graded sand with some isolated layers of sandy silt. Buried steel conduits running along the length of the parking lot were observed. Water was not encountered within the 50-foot depth explored. The site topography is shown in Figure 3-9, Grading and Drainage Plan.

6.5.1.2 Physiographic Setting

The CPP site is located in the northeastern area of Orange County.

6.5.1.3 Climate

The climate of southern California in the vicinity of the CPP can be characterized as Mediterranean with generally dry summers and mild, wet winters. Monthly average, maximum, and minimum temperature data based on an 18-year record for the Anaheim weather station are presented in Table 6.5-1. Based on 18 years of record, the average annual temperature for Anaheim is 65.95°F.

TABLE 6.5-1
MONTHLY TEMPERATURE (°F) DATA FOR ANAHEIM, CALIFORNIA

	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Avg. Max	69.7	70.0	72.0	74.0	76.7	80.2	85.0	86.9	85.9	80.6	75.0	70.1
Mean	58.5	59.2	61.3	63.3	67.0	70.4	74.6	75.6	74.2	69.0	63.2	58.5
Avg. Min	47.3	48.3	50.5	52.6	57.2	60.5	64.1	64.3	62.4	57.5	51.5	46.9

Notes:
°F = degrees Fahrenheit
max = maximum
min = minimum

Precipitation in the area is characterized by long, dry summers and intermittent wet periods. The Anaheim weather station (No. 040192) has an 18-year record of precipitation. Based on this record, the average annual precipitation is 13.1 inches (see Table 6.5-2).

TABLE 6.5-2
ANAHEIM AVERAGE MONTHLY PRECIPITATION (INCHES)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2.76	3.80	2.00	0.85	0.36	0.16	0.04	0.01	0.08	0.69	0.82	1.53

6.5.1.4 Surface Waters

The area surrounding the CPP site flows to Reach 2 of the Santa Ana River located approximately 1.5 miles south of the project site. The Santa Ana River has been improved to provide flood control and groundwater recharge. The Santa Ana River flow in Reach 2 contains natural flow, reclaimed water, and imported water (Orange County Water District [OCWD] 1999a, b). The beneficial uses of Reach 2 as designated in the Santa Ana River Basin Plan are Agricultural Supply, Groundwater Recharge, Water Contact Recreation, Non-contact Water Recreation, Warm Freshwater Habitat, and Wildlife Habitat, including Rare, Threatened, or Endangered Species. Notably, Reach 2 is exempted from the Municipal Supply beneficial use. Runoff from the CPP site will be directed to a treatment device and underground facility basin to be constructed on the southwest corner of the facility. Runoff from the CPP will only be experienced as a result of extreme precipitation events. The Carbon Canyon Diversion Channel, located approximately 2,500 feet east of the CPP site, provides flood control.

6.5.1.5 Geology

The CPP site is located within the Los Angeles Basin of southern California at the northern terminus of the Peninsular Ranges geomorphic province. The Los Angeles Basin is bounded by the Santa Monica Mountains on the north, Puente Hills and Whittier Fault to the east, Santa Ana Mountains and San Joaquin Hills on the south, and Palos Verde Peninsula and coastline to the west. The tectonic shift from extension during the Miocene epoch to crustal compression to present time has uplifted the peripheral edges of the Los Angeles Basin, exposing stratigraphy in the flanks of surrounding hills and mountains (Norris and Webb, 1990).

The Los Angeles Basin resulted from extensional tectonics along a transform plate boundary. Northwest-trending faults, which divide the basin into blocks, provided a mechanism for basin subsidence. Sedimentary deposition occurred contemporaneously with basin subsidence, faulting and folding during the early Miocene. Pre-basinal rocks range in age from late Cretaceous through Oligocene, and were deposited in a sedimentary cycle unrelated to the formation of the Los Angeles Basin. For additional information see Section 6.3.1.1. Regional Geologic Setting, and 6.3.1.2, Site Geologic Conditions.

6.5.1.6 Hydrogeology

The hydrogeology of the Coastal Plain of Orange County Groundwater Basin (Orange County Basin) is summarized in California Groundwater Bulletin 118-2003 (California Department of Water Resources [DWR], 2003). The Orange County Basin underlies a coastal alluvial plain in the northwestern portion of Orange County. The basin is bounded by consolidated rocks exposed on the north in the Puente and Chino Hills, on the east in the Santa Ana Mountains, and on the south in the San Joaquin Hills. The basin is bounded by the Pacific Ocean on the southwest and by a low topographic divide approximated by the Orange County-Los Angeles County line on the northwest. The basin underlies the lower Santa Ana River watershed.

6.5.1.6.1 Aquifer Characteristics Upper Aquifer System. This system includes Holocene alluvium, older alluvium, stream terraces, and the upper Pleistocene deposits represented by the La Habra Formation. It has an average thickness of about 800 feet and consists mostly of sand, gravel, and conglomerate with some silt and clay beds. Generally, the upper aquifer system contains a lower percentage of water-bearing strata in the northwest and coastal portions of the area where clays and clayey silts dominate. Accordingly, recharge from the surface to the groundwater basin may be minor in these areas. Recharge to the upper aquifer system occurs primarily in the northeastern portions of the basin (DWR, 1967). The upper aquifer provides most of the irrigation water for the basin (Sharp, 2000; OCWD, 1999a, b).

6.5.1.6.2 Middle Aquifer System. This system includes the lower Pleistocene Coyote Hills and San Pedro Formations which have an average thickness of 1,600 feet and are composed of sand, gravel, and minor amounts of clay. The primary recharge of the middle aquifer system is derived from the Santa Ana River channel in the northeast near the town of Olive (DWR 1967). The middle aquifer system provides 90 to 95 percent of the groundwater for the basin (Sharp, 2000; OCWD, 1999a, b).

6.5.1.6.3 Lower Aquifer System. This system includes the Upper Fernando Group of upper Pliocene age and is composed of sand and conglomerate 350 to 500 feet thick. Electric logs of this aquifer indicate that it would likely yield large quantities of fresh water to wells (DWR, 1967), but it is not utilized for groundwater production at present (Sharp, 2000).

6.5.1.6.4 Recharge Areas. Recharge to the Orange County Basin is derived from percolation of Santa Ana River flow, infiltration of precipitation, and injection into wells. The Santa Ana River flow contains natural flow, reclaimed water, and imported water that is spread in the basin forebay (OCWD, 1999a, b).

6.5.1.6.5 Groundwater Level Trends. Groundwater levels in the Orange County Basin are generally lower than the level in 1969, when the basin is considered to have been full (OCWD, 1999a, b). The level in the forebay has generally stabilized, whereas the southern coastal area has declined steadily through time (OCWD, 1999a, b). Since 1990, the magnitude of yearly groundwater level fluctuation has approximately doubled near the coast because of seasonal water demand and short-term storage programs, but has stayed the same in the forebay (OCWD, 1999a). Average groundwater levels for the Orange County Basin have risen about 15 feet since 1990, with average levels in the forebay rising about 30 feet and average levels in the coastal areas dropping a few feet (OCWD, 1999a).

6.5.1.6.6 Groundwater in Storage. The total capacity of the Orange County Basin is 38,000,000 acre-feet (AF) (DWR, 1967). As of 1998, storage of fresh water within the basin amounted to 37,700,000 AF (OCWD, 2000).

6.5.1.6.7 Groundwater Quality. Dissolved solids in the water within the Orange County Basin are primarily sodium-calcium bicarbonate (DWR, 1967). Total dissolved solids (TDSs) range from 232 to 661 milligrams per liter (mg/L) and average 475 mg/L (OCWD, 2000). The average TDS content of 240 public supply wells sampled was 507 mg/L, with a range of 196 to 1,470 mg/L.

6.5.1.7 Water Supply History and Future Projections

6.5.1.7.1 Municipal Water Supply. While groundwater has been the major source of water for the COA, this supply is augmented with imported water supplies. From the period FY 2001/2002 to FY 2005/2006, potable water supplies provided to the COA by groundwater wells decreased from 78 percent to 57 percent.

6.5.1.7.2 Groundwater Replenishment System (GWRS). The Orange County Water District (OCWD) in cooperation with the Orange County Sanitation District (OCSD) has developed a comprehensive water recycling program entitled GWRS. The program treats sanitary waste to develop a high quality water source. The program was developed to serve four larger objectives:

- Groundwater recharge to better the quality of the existing groundwater basin
- Groundwater recharge to minimize salt water intrusion into the existing groundwater basin
- Provide industrial and commercial process water as a replacement to existing potable water sources
- Reduce the amount of treated wastewater discharged into waters of California

Because the recycled water is being used to recharge the existing groundwater basin as well as serve industrial and commercial users, the water must be treated to a very high quality. The CPP will be the first industrial user of the program but other future users have been identified by OCWD. The industrial use of the recycled water is expected to increase over time as the delivery infrastructure is expanded. CPP will be constructing a pipeline and pumping station as one of the first industrial delivery pipelines.

6.5.2 Project Water and Wastewater Needs

The major equipment information list is described in Section 3.0. Plant auxiliary equipment will include a packaged chilled water system with associated HVAC-type cooling tower for CTG power augmentation.

The CPP will require the use of water primarily for the production of high purity demineralized (DI) water for CTG NO_X injection, for chilled water system cooling tower makeup, and for miscellaneous plant domestic services.

High quality DI water is required to operate the CTG water injection system, for CTG water wash, and CTG Sprint systems. Water filtration and demineralization equipment will be provided to produce DI water from GWRS water and store the DI water for distribution to the turbines as required.

Use of dry (fin fan) cooling technology for the chilled water system was evaluated in the design of the CPP project to limit the water requirements. However, this cooling technology was rejected due to the following considerations.

- The use of dry cooling for the chilled water system would lower plant overall efficiency by increasing the plant parasitic electrical load by approximately 3 megawatts (MW).
- The CPP will not operate as a baseload station. Rather, it will operate at a maximum 4,006 hours per year as a peaking facility when energy demands are greatest. This limits the water requirements at the CPP and further reduces the economic feasibility of dry cooling technology.
- The CPP uses a chiller system to increase fuel efficiency, rather than for steam condensation. This requires substantially less cooling water than required for a conventional steam-cycle power plant.
- An adequate supply of recycled water is available in close proximity to the CPP site. Use of the recycled water will not impact fresh water supplies.

The water balance diagram (Figure 3-6, Water Balance Diagram) shows the potable and process water flow streams for the maximum use day and the average day. Table 6.5-3 shows the maximum daily, average daily, and average annual water supply and disposal flows.

TABLE 6.5-3
DAILY AND ANNUAL WATER FLOWS

	Maximum Daily (gal/day)	Average Daily (gal/day)	Maximum Annual (acre-ft/year)	Average Annual (acre-ft/year)
Process Water Usage				
Chiller system cooling tower makeup	167,074	142,000		
RO/Demineralizer system	246,720	241,920		
Process Water Supply				
GWRS recycled water	414,720	384,000	74	37
Domestic Water Usage				
Potable water usage	9,600	3,480		
Domestic Water Supply				
COA Municipal water	9,600	3,480	3.0	1.5
Total Water Usage	424,320	387,480	77	38.5
Wastewater				
Cooling tower blowdown	16,320	14,400		
RO system rejects	61,440	60,480		
Facilities (sanitary, etc.)	9,600	3,840		
Total	87,360	78,720	15.0	7.5

Notes:
The maximum daily use is based on 16 hours of full load operation 89ºF / 36 percent relative humidity.
The average daily use is 16 hours of the average of the full load use at 82ºF / 47 percent relative humidity.
The average annual use of 37 acre-ft is based on the COA's expected annual operating hours.
The maximum annual use of 74 acre-ft of GWRS water is based on COA'a expected maximum annual operating hours.
Ft = feet
Gal = gallon(s)
RO = reverse osmosis

Water needs at the CPP are considerably lower with the use of simple-cycle combustion generation technology rather than more water-intensive steam generation technology.

6.5.2.1 Alternative Water Supplies

Following is a list of the alternative water supplies that were evaluated for CPP:

- Surface water – Water present in lakes, streams and rivers
- Recycled water – Wastewater treatment plant (WWTP) effluent that has received tertiary treatment
- Municipal supply – Water available via the municipal water supply system

- Agricultural wastewater – Drainage water from irrigation practices
- Groundwater – Groundwater located in the aquifers beneath the project site
- Ocean water – Water from the Pacific Ocean

6.5.2.2 Water Supply Alternatives Decision Analysis

The following hierarchy of "tests" was applied to each water supply alternative:

Test 1. Is the alternative water supply feasibly available at the CPP? (If not, then disregard this alternative. If yes, proceed to Test 2.)

Test 2. Will the subject water supply alternative satisfy California Water Policy? (If not, then disregard this alternative. If yes, proceed to Test 3.)

Test 3. Is the subject water supply alternative technologically sufficient (quantity and quality) to guarantee high safety and reliability (98 percent availability)? (If no, then disregard this alternative. If yes, proceed to Test 4.)

For water supply alternatives passing Tests 1 – 3, apply Tests 4 – 6:

Test 4. Rate other impacts associated with each water supply alternative, including transportation, biological, energy, health and safety, etc.

Test 5. Rate relative capital costs of each remaining water supply alternative.

Test 6. Rate relative operations and maintenance (O&M) costs of each of the remaining water supply alternatives.

The scores from application of Tests 4 – 6 were weighted and totaled for each water supply alternative, with the highest-scoring alternative selected.

6.5.2.3 Municipal Supply

Municipal supply is available to the project site via the COA 14-inch water main located in East Miraloma Avenue. The COA water system serves a population of more than 345,500 and relies on water pumped from the Orange County Groundwater Basin by 19 city-owned wells with a capacity of 82 million gallons per day (gpd), supplemented by imported water purchases from the Metropolitan Water District (MWD) of southern California. The COA can store almost 950 million gallons in 13 local reservoirs. The water delivered by the COA water system meets or exceeds all standards established by the State of California and the federal government regarding quality of drinking water. The quality of this water is presented in Table 6.5-4. The municipal supply is abundant in the vicinity of the CPP and has a TDS content of approximately 1,000 mg/L.

TABLE 6.5-4
ANAHEIM MUNICIPAL SUPPLY WATER QUALITY

General	Units	Levels	Chemicals	As Such
Conductivity	μS/cm	1,100	Barium (μg/L)	140
pH		8.0	Calcium (mg/L)	76
Total Suspended Solids	ppm		Chlorine (mg/L)	1.0
TDS	ppm	690	Magnesium (mg/L)	32
Total Organic Carbon	ppm		Sodium (mg/L)	110
Hardness as $CaCO_3$	ppm	320	Sulfate (mg/L)	290

Source: Data from COA
μS/cm = microsiemens per centimeter
mg/L = milligrams per liter
ppm = parts per million
TDS = total dissolved solids

As adequate water supplies from the GWRS are available to the CPP, municipal supply was not selected as the primary source of industrial water supply. However, due to the availability and high reliability of this source, municipal supply will be retained as a backup to the GWRS. A "Will-Serve" letter has been received from the COA stating that the system has adequate supplies and capacity to meet the needs of the CPP (see Appendix O).

6.5.2.4 Surface Water

The Santa Ana River is located approximately 1.5 miles south of the CPP site. This source failed Test 1 as the CPP does not have water rights for the use of water from the Santa Ana River. This alternative was eliminated from further consideration.

6.5.2.5 Recycled Water

The nearest source of recycled water is from the GWRS facility located approximately 2,480 feet east south of the CPP site.

The GWRS was developed as a cooperative project between the OCSD and the OCWD to improve water supply reliability, protect the groundwater basin from seawater intrusion and to provide for industrial uses. The GWRS reduces the amount of treated wastewater released into the ocean and delays the need for construction of another ocean outfall. The first phase of the GWRS includes the production of approximately 72,000 AF of water per year. The project can be expanded in the future.

The OCSD currently treats 250 million gallons of wastewater per day. The GWRS will utilize a portion of this highly treated wastewater that is currently discharged to the ocean and treat it to beyond drinking water standards using advanced membrane purification facilities to be constructed in Fountain Valley. The advanced treatment will incorporate a three-step process: microfiltration, reverse osmosis, and ultraviolet light with hydrogen peroxide disinfection. The quality of this water is presented in Table 6.5-5, Recycled Supply Water Quality.

Recycled water passed Test 1 as a source of water supply as it surpasses the water quality requirements and is readily and reliably available to the CPP site. In addition, the relatively low TDS concentrations in the recycled water would allow for disposal of process wastewater into the sanitary sewer. This alternative was identified as the preferred primary source of industrial water supply to the Project. A "Will-Serve" letter has been received from the OCWD stating that the district has adequate supplies and capacity to meet the needs of the CPP (see Appendix O).

6.5.2.6 Agricultural Wastewater

Agricultural wastewater is drainage water from irrigation practices. This source failed to pass Tests 1 and 3 because drainage water from irrigation practices is not available in the vicinity of the project site. Therefore, this alternative was dropped from further consideration.

6.5.2.7 Groundwater

Groundwater is a readily available and reliable source of water supply available at the site for use by the CPP. As described above, municipal supply consists largely of groundwater and will be used as a backup supply to the GWRS.

6.5.2.8 Ocean Water

This source failed to pass Test 1 due to the distance of the CPP from the Pacific Ocean. This alternative was dropped from further consideration.

The scores from application of Tests 4 – 6 were totaled for each alternative, with the highest scoring alternative selected. Water supply options are summarized in Table 6.5-6, Evaluation of Water Supply Options.

Note that the GWRS option met all of the required criteria of Tests 1 – 3 and the best evaluation of Tests 4 – 6. As such, CPP's water resource evaluation has determined that the recycled water from the GWRS is the preferred option for primary water supply. Municipal supply, consisting largely of groundwater, will be used as a backup water supply.

TABLE 6.5-5
GWRS RECYCLED SUPPLY WATER QUALITY

Constituent	Units	Minimum	Average	Maximum
Biochemical Oxygen Demand, BOD	mg/L	--	--	--
Chemical Oxygen Demand, COD	mg/L	--	--	--
Total Organic Carbon, TOC	mg/L	0.12	0.26	1.24
Total Suspended Solids, TSS	mg/L	--	--	--
Turbidity	NTU	0.02	0.2	0.3
Total coli form bacteria	cfu	0.1	0.42	46
Total plate count	MPN	--	--	--
Total Nitrogen	mg/L	1.1	2.6	4.6
Ammonia Nitrogen, NH_4-N	mg/L	0.29	1.45	2.35
Nitrate Nitrogen, NO_3-N	mg/L	0.07	0.2	2.53
Nitrite Nitrogen, NO_2-N	mg/L	0.13	0.13	0.13
Phosphate, PO_4-P	mg/L	0.01	0.02	0.4
Sulfate, SO_4	mg/L	1.25	1.78	2.55
Chloride, Cl	mg/L	5.35	7.08	9.3
Bicarbonate, HCO_3	mg/L	51.6	53.0	53.9
Fluoride, F	mg/L	0.01	0.02	0.03
Calcium, Ca	mg/L	16.7	16.8	17.0
Magnesium, Mg	mg/L	0.1	0.13	0.18
Sodium, Na	mg/L	6.42	6.78	8.38
Potassium, K	mg/L	0.51	0.58	0.7
Silica, SiO_2	mg/L	0.26	0.68	0.97
Aluminum, Al	µg/L	0.1	9.9	41
Arsenic, As	µg/L	0.2	0.71	4.8
Antimony, Sb	µg/L	0.6	0.6	0.6
Barium, Ba	µg/L	0	0	0
Beryllium, Be	µg/L	0.1	0.1	0.1
Boron, B	µg/L	0.24	0.3	0.39
Cadmium, Cd	µg/L	0.1	0.1	0.1
Chromium, Cr	µg/L	0.1	0.16	1.1
Cobalt, Co	µg/L	0.1	0.22	2.2
Copper, Cu	µg/L	0.1	13.2	28
Cyanide, CN	µg/L	0.5	6.5	46
Iron, Fe	µg/L	0.1	3.3	14
Lead, Pb	µg/L	0.1	0.26	1.6

TABLE 6.5-5 (CONTINUED)
GWRS RECYCLED SUPPLY WATER QUALITY

Constituent	Units	Minimum	Average	Maximum
Manganese, Mn	µg/L	0.1	0.73	9.2
Mercury, Hg	µg/L	0.05	0.05	0.05
Nickel, Ni	µg/L	0.1	0.1	0.1
Selenium, Se	µg/L	0.5	1.36	16
Silver, Ag	µg/L	0.1	0.18	1.6
Thallium	µg/L	0.1	0.1	0.1
Zinc, Zn	µg/L	5	5	5
Total Dissolved Solids, TDS	mg/L	59.98	65.34	74.26
MBAS	mg/L	0	0.01	0.04
Temperature	°F	67.1	74.7	80.6
Organic Nitrogen, N	mg/L	0.01	0.18	1
pH	--	8.9	8.9	8.9
Carbon Dioxide, CO_2	mg/L	0.11	0.11	0.11
Electric Conductivity, EC	µS/cm	--	--	--
Langelier Saturation Index, LSI	--	0.14	0.15	0.16
Ryznar Index, RI	--	16.2	15.8	15.5
Total Alkalinity, TA	mg/L as $CaCO_3$	42.3	43.5	44.2
Total Hardness, TH	mg/L as $CaCO_3$	42.2	42.6	43.1

Notes:
Average of the 45 samples collected in 2005
µS/cm = microsiemens per centimeter
< = less than
$CaCO_3$ = calcium carbonate
mg/L = milligrams per liter
NTU = Nephelometric Turbidity Unit
-- = not available
ppm = parts per million
ppb = parts per billion
TDS = total dissolved solids
µg/L = micrograms per liter

6.5.2.9 Wastewater Disposal Alternatives

Following is a summary of the wastewater disposal alternatives that were evaluated for CPP:

- ZLD system – A mechanical system using membrane technology and heat to effectively reduce liquid wastes to a dry waste for landfill disposal
- Evaporation pond – Large, lined surface impoundment for disposal of wastewater via atmospheric drying, resulting in a sludge that must be disposed in a landfill system

TABLE 6.5-6
EVALUATION OF WATER SUPPLY OPTIONS

Supply Option	Test #1 Availability (pass?)	Test # 2 Satisfy LORS? (pass?)	Test #3 Technologically Feasible? (pass?)	Test #4 Environmental Impacts	Test #5 Relative Capital Costs	Test #6 Relative O&M costs	Relative Ranking
Surface Water	No	NA	NA				
Municipal Supply	Yes	Yes	Yes	Medium	Medium	Low	2[1]
Recycled Water	Yes	Yes	Yes	Low	Medium	Low	1
Agricultural Wastewater	No	NA	NA				
Groundwater	Yes	Yes	Yes	Medium	Medium	Low	2[1]
Ocean Water	No	NA	NA				

Notes:

1 Municipal Supply consists largely of groundwater.

CPP's water resource evaluation has determined that recycled water from the GWRS is the most plausible option.

LORS = laws, ordinances, regulations, and standards

NA = not applicable

O&M = operations and maintenance

- Deep injection well – Disposal of wastewater via well discharge to a geologic formation that is unsuitable for potable water production and isolated from aquifers
- Disposal to WWTP – Discharge to a sanitary sewer which in turn discharges to a publicly owned treatment works
- Surface discharge – Discharge of wastewater to the ground or receiving waters, including lakes, rivers and streams

6.5.2.9.1 Wastewater Disposal Alternatives Decision Analysis. The following hierarchy of "tests" was applied to each wastewater disposal alternative:

Test 1. Is the wastewater disposal alternative feasibly available at the CPP? (If not, then disregard this alternative. If yes, proceed to Test 2.)

Test 2. Will the subject alternative satisfy applicable laws, ordinances, regulations, and standards (LORS)? (If not, then disregard this alternative. If yes, proceed to Test 3.)

Test 3. Is the subject alternative technologically sufficient to guarantee high safety and reliability (98 percent availability)? (If no, then disregard this alternative. If yes, proceed to Tests 4 – 6.)

For alternatives passing Tests 1 – 3, Tests 4 – 6 were applied and scored:

Test 4. Rate other environmental impacts, including transportation, biological, energy, health and safety, etc.

Test 5. Rate relative capital costs of each remaining alternative.

Test 6. Rate relative O&M costs of each remaining alternatives.

The scores from application of Tests 4 – 6 were weighted and totaled for each alternative, with the highest scoring alternative selected.

6.5.2.10 ZLD System

This is a mechanical system using membrane technology and heat to reduce liquid wastes to a dry waste for landfill disposal. This alternative passed Tests 1 and 2, but failed Test 3 due to low reliability of known systems. In addition, this alternative has high capital, O&M costs, and requires landfill disposal of produced wastes.

The parasitic energy losses associated with use of ZLD technology would be most pronounced at temperatures typically experienced when power demands are greatest. Finally, the CPP will not operate as a base load station. Rather, it will operate as a peaking facility when energy demands are greatest. A ZLD system must be operated continuously to work effectively. This mode of operation is not compatible with the forecasted peaking operations of the CPP. This alternative was dropped from further consideration.

6.5.2.11 Evaporation Pond

Evaporation ponds are large, lined surface impoundments for disposal of wastewater via atmospheric drying. This process results in a sludge that must be periodically removed and disposed in a landfill system. This wastewater disposal alternative failed Test 1 due to the lack of sufficient area at the CPP site for adequately sized evaporation ponds. Evaporation ponds also have high installation costs and require large areas of land and may result in significant environmental impacts. The use of evaporation ponds for wastewater disposal was eliminated from further consideration.

6.5.2.12 Deep Injection Well

This alternative includes the disposal of wastewater via wells that discharge to a geologic formation that is unsuitable for potable water production and is isolated from aquifers. The following geologic conditions protective of an underground source of drinking water are required to obtain a permit to construct a Class I Deep Injection Well:

- A thick sequence of permeable sediments capable of accepting the injected wastewater
- A thick sequence of impermeable sediments that would confine the injected wastewater, and prevent migration towards aquifers containing fresh groundwater
- The injection operation should not facilitate the fracturing of the rocks or the integrity of the injection well

This alternative failed Test 1 as information regarding the stratigraphy beneath the CPP site is not sufficiently detailed to make a determination if the CPP site could meet the requirements for installation of a deep injection well. The use of a deep injection well for wastewater disposal was eliminated from further consideration.

6.5.2.13 Disposal to WWTP

This method includes discharge to a sanitary sewer which in turn discharges to a publicly owned treatment works. Presuming that either the GWRS or municipal water supply (backup supply) is utilized, the resulting wastewater discharges will be within requirements for disposal to the sanitary sewer. A letter has been received from the OCSD stating that the sanitary sewer and WWTP can accept this waste. This letter is located in Appendix O, “Will Serve Letters.” Therefore, disposal of wastewater to the WWTP passed Tests 1 – 3. Because it is the only alternative to pass it, and has been identified as the preferred alternative.

6.5.2.14 Surface Discharge

This alternative would involve the discharge of process wastewater to the ground or receiving waters including lakes, rivers, and streams. This method failed to pass Test 2 as the quality of the wastewater may not meet state and federal discharge limitations for direct discharge to surface waters. This alternative was dropped from further consideration.

The results for each alternative wastewater disposal options are presented in Table 6.5-7, Evaluation of Wastewater Disposal Options.

Note that only the WWTP disposal alternative met all of the required criteria of Tests 1 – 3. As such, CPP's wastewater evaluation has determined that the use of WWTP disposal is the preferred option for management of industrial process wastewater.

6.5.3 Water Resources and Wastewater Management

6.5.3.1 Project Water Resources Plan

Water will be used during construction and at the CPP for industrial, sanitary, and potable uses. The primary uses will be for chilled water system cooling tower makeup, and emissions control. Under normal operating conditions, the CPP's average water requirement will be approximately 384,000 gpd (400) gallons per minute [gpm]. The expected peak recycled water use or consumption is approximately 414,720 gpd, based on 16 hours of operation at the sustained peak hourly temperature. Annual maximum recycled water consumption is expected to be approximately 74 AF. The COA has contracted with Orange County Water District (OCWD) for the capacity to deliver up to 200 acre-feet of GWRS water per year. For purposes of this AFC, the environmental evaluation has conservatively been based on 200 acre-feet of recycled water consumption. The expected daily and annual water flows are presented in Table 6.5-3.

6.5.3.2 Sources of Project Water Supply

Recycled water provided by the GWRS was selected to meet the CPP process and other water needs as it is the only alternative water source that meets Tests 1 – 3 of the decision analysis described in Section 6.5.2.1. Although the CPP does not employ a steam cycle, use of this water supply is consistent with the spirit of the California Water Policy (State Water Resources Control Board Resolution 75-58). In support of this option, the OCWD has provided CPP with a "Will-Serve" letter acknowledging that there is adequate recycled water supply is available to support the CPP operations and that the District will provide this supply (see Appendix O).

TABLE 6.5-7
EVALUATION OF WASTEWATER DISPOSAL OPTIONS

Wastewater Option	Test #1 Availability (pass?)	Test # 2 Satisfy LORS? (pass?)	Test #3 Technologically Feasible? (pass?)	Test #4 Environmental Impacts	Test #5 Relative Capital Costs	Test #6 Relative O&M Costs	Relative Ranking
ZLD	Yes	Yes	No				Rejected
Evaporation pond	No	Yes	Yes				Rejected
Deep injection well	Unknown	Unknown	Unknown				Rejected
WWTP	Yes	Yes	Yes	No	Low	Low	#1
Surface discharge	No	No	Yes				Rejected

Notes:
LORS = Laws, Ordinances, Regulations, and Standards
NA = not applicable
O&M = operation and maintenance
WWTP = wastewater treatment plant
ZLD = zero liquid discharge

The typical water quality of the GWRS supply is presented in Table 6.5-5. As described in the OCWD Will-Serve letter, the OCWD has adequate and dependable recycled water supply to meet current and future demands through the thirty-year life of the CPP.

Municipal water supplies from the COA 14-inch water line in East Miraloma Avenue will provide potable water sanitary needs, fire water, and a backup supply to the GWRS.

6.5.3.3 Process Water Uses

Uses of the GWRS water supply will include plant service water, chiller cooling system makeup, CTG NO_X injection (after treatment), CTG, and domestic uses. The CTG injection water will be treated using a RO system, followed by a mixed-bed deionizer. The amounts of water used for each purpose are summarized in Table 6.5-8.

TABLE 6.5-8
PLANT WATER USAGE SUMMARY[1, 2]

	GWRS Water Usage		Potable Water Usage	
	Gallons	Acre-feet	Gallons	Acre-feet
Daily water flow	383,787	0.94	3,840	0.01
Annual water flow	72,309,600	200	542,322	1.5
Cooling water maximum flow	141,867	0.39		

[1] Cooling water flow is the makeup water flow to the packaged HVAC cooling tower used as part of the chilled water system.

[2] Daily flows are the maximum flows based on a 16-hour day at plant maximum output conditions.

6.5.3.4 Project Water Supply Facilities

Plant raw water for process needs will consist of recycled water provided by the GWRS. The GWRS water meets State of California Title 22 water quality requirements. The GWRS water system also directs recycled water to an existing groundwater recharge basin near the CPP site. A new underground pumping station accessing a 60-inch GWRS main will be installed by the COA as part of the CPP project. The pumping station will include redundant 500 gpm capacity pumps and supply water via a new 14-inch pipeline routed along East Miraloma Avenue to the plant site. The raw water will be stored onsite in a 350,000-gallon storage tank.

Chiller cooling system makeup water will be pumped from the tank to the four-cell cooling tower as required to replace water lost from evaporation, blowdown, and drift. The circulating water blowdown rate will be continuously treated and controlled in order to achieve approximately 10 cycles of concentration in the circulating water. The number of cycles of concentration will be determined by the scaling threshold of the water in the cooling tower.

The cooling tower will require the addition of chemicals to maintain the required chemistry in the water for proper equipment operation. A chemical feed system will supply water-conditioning chemicals to the circulating water to minimize corrosion and control the formation of mineral scale and bio-fouling. The cooling tower will use sodium hypochlorite for biological growth control, sulfuric acid for pH control, and a corrosion and scale inhibitor. The acid feed equipment will consist of a portable sulfuric acid storage tank and two full-capacity sulfuric acid metering pumps. The cooling tower full-load operating characteristics are summarized in Table 6.5-9.

TABLE 6.5-9
COOLING TOWER FULL-LOAD OPERATING CHARACTERISTICS

Parameter	Cooling Tower[1] Average
Circulating Water, gpm	7,740
Number of Cells	4
Makeup, gpm	148
Blowdown, gpm	15
Evaporation and Drift, gpm	133

Notes:
[1] All numbers are estimates for full load at 82 of / 47 percent relative humidity
gpm = gallons per minute

Municipal supply will be provided by the COA's 14-inch line in East Miraloma Avenue. The potable water system will also serve as backup to the GWRS supply in the event the GWRS is unavailable.

The CPP plant design will include a fire water loop with two independent points of water supply from the municipal water supply system off of East Miraloma Avenue. The fire water loop will provide for water supply for plant sprinkler systems, water deluge systems, and for fire hydrants. The anticipated fire flow needed for the site per the California Fire Code (CFC) is 1,500 gpm based on a 15,000-square-foot plant operations building which is fully fire sprinkler protected.

6.5.3.5 Construction Phase

During demolition and construction, water will be used for dust control, soil compaction, concrete curing, and hydrostatic testing. The average daily water demand for demolition and construction is estimated to be 13,000 gallons/day. The peak daily water demand for construction is estimated to be 65,000 gallons/day when filling tanks and pipes for hydrostatic testing. The annual water demand for construction is estimated to be approximately 3.5 million gallons.

6.5.3.6 Project Water Treatment

Process water will be provided to the CPP via the GWRS. High quality demineralized water is required to operate the CTG water injection system, for CTG water wash, and CTG SPRINT systems.

GWRS water supply is considered to be of adequate quality and can be used directly as makeup for the chilled water system cooling towers. The heat rejection equipment for the chilled water system will consist of a four-cell mechanical draft wet cooling tower. The cooling towers that will be used are conventional HVAC-type galvanized steel tower cells that will be elevated over the top of the water chillers for efficient use of plant space. The cooling tower will require the use chemical addition as well as blowdown to maintain the required chemistry in the water for proper equipment operation. It is expected that the cooling tower will be able to operate at approximately 10 cycles of concentration to prevent mineral scale formation on the heat transfer surfaces. The cooling towers will also suspend atmospheric particulates resulting in elevated levels of suspended solids in the circulating water system. To ensure the cooling towers do not scale for efficient operation and also maintain suspended solids at manageable levels, it will be necessary to blowdown from the circulating water system, which effectively results in a limit of 10 cycles of concentration. The cooling tower will use sodium hypochlorite for biological growth control, sulfuric acid for pH control, and a corrosion and scale inhibitor. An automatic control system will meter the addition of these chemicals.

In general, the cooling tower water treatment system will be used to maintain the circulating water quality within the requirements of the cooling tower manufacturer and the limits of the WWTP, as shown in Table 6.5-10.

6.5.3.7 Demineralized Water

The water injected into the CTG for NO_X control must be free of contaminants. To produce DI process water, GWRS supply water will be pumped from the raw water storage tank and filtered and treated with a reverse osmosis (RO) system to remove suspended solids and most of the dissolved solids from the water. RO reject water from the first stage RO unit will flow to the plant wastewater system, and the RO permeate water will flow into the second stage RO unit. RO reject water from the second stage RO will be recycled back to the first stage RO inlet for water recovery. RO permeate water from the second stage RO flows to the trailer-mounted mixed-bed polishers to remove all remaining minerals and produce high quality demineralized water for the CTGs. The demineralizers will be regenerated by an

TABLE 6.5-10
CIRCULATING WATER QUALITY LIMITS

Parameter	Concentration (ppm)
Alkalinity, as $CaCO_3$	350
Silica, as SiO_2	150
Iron	2
Manganese	1
Sulfides	10
Ammonia	10
TDS	10,000
Calcium as $CaCO_3$	1,000
Chlorides, as Cl	1,000
Sulfates as $CaCO_3$	1,500
Nitrates, as NO_3	1,200

Notes:
< = less than
$CaCO_3$ = calcium carbonate
Cl = chlorine
NO_3 = nitrate
ppm = parts per million
SiO_2 = silica dioxide
TDS = total dissolved solids

offsite contractor. The water will be stored in a 180,000-gallon demineralized water storage tank for distribution to the turbines as required. In addition to being used for CTG NO_X control, a portion of the demineralized water will also be used for CTG compressor washing. The RO system rejects approximately 30 percent of the feed water, along with the impurities that were removed.

Typically when the plant chilled water system is in operation, water will be condensed out of the ambient air as the air passes over the chilled water heat transfer coils located in the air intakes of the CTGs. This condensate is of high quality as it is simply condensed moisture from the ambient air. Recovered condensate from the chiller coils will combine with the water from the second RO and pass through the mixed bed polishers. Water from the mixed bed polishers is pumped to the DI tank for storage and use in the CTGs.

6.5.3.8 Project Wastewater Management Plan

The CPP project will generate industrial and sanitary wastewater for disposal. The primary source of wastewater will be from chiller system cooling tower blowdown and RO reject. Minor amounts of wastewater will be generated by plant drains and sanitary wastes. The average daily wastewater volume will be approximately 74,880 gallons (78 gpm) and the maximum daily wastewater volume will be 78,720 gallons (82 gpm). Based on the recycled water supply characteristics from the GWRS, the TDS concentration of the wastewater will be approximately 335 mg/L.

6.5.3.9 Selected Wastewater Disposal Alternative

Plant process wastewater such as blowdown from the chilled water system cooling tower, reject water from the demineralization system and domestic sanitary wastewater will be collected in a single common plant onsite underground sump and pumped using redundant pumps using a 3-inch force main to the existing OCSD sewer system located in East Miraloma Avenue.

Based on the evaluation described in Section 6.5.2.2, Wastewater Disposal Alternatives, discharge to the sanitary sewer was identified as the superior alternative for disposal of wastewater. A "Will-Serve" letter has been provided by the OCSD acknowledging that adequate wastewater treatment capacity is available to support the CPP operations and that the wastewater will meet pretreatment requirements. The CPP proposes to interconnect to the OCSD's 30-inch polyvinyl chloride (PVC)-lined reinforced concrete trunk sewer at a manhole in East Miraloma Avenue located in front of the CPP site via a 14-inch gravity line (see Figure 3-1, Vicinity Map - Linears).

Approximately 50 percent of the wastewater discharged to the sewer will be conveyed to the OCSD Plant #1 where 100 percent of the water will be treated and used to replenish the GWRS. The remaining 50 percent of the wastewater discharged to the sewer will be conveyed to OCSD Plant #2 where it will be treated and then discharged to the ocean. The OCSD provides wastewater treatment services for the northern portion of Orange County. The WWTP has capacity to treat 280 mgd of wastewater. On an average day, the OCSD Plants #1 and 2 receive 234 million gallons of wastewater. Treatment consists of two major steps; primary and secondary treatment, and a process to treat solids removed in the process at the plant.

6.5.3.10 Construction Phase

Construction wastewater into the sanitary sewer system is estimated to be 650,000 gallons annually. Peak discharge is anticipated to be between 300 and 400 gpm which will occur when draining hydrostatically tested tanks.

6.5.3.11 Project Wastewater Streams

The wastewater discharge from the CPP will consist primarily of process wastewater as well as a minor amount of domestic sewage. The process wastewater is comprised of water effluent from the plant drain and stormwater oil-water separators, RO rejects and blowdown from the chilled water system cooling towers. Blowdown will be required to prevent mineral scale formation on heat transfer surfaces. This blowdown will consist of GWRS makeup water that has been concentrated by evaporative losses in the chilled water system cooling towers and residues of the chemicals added to the circulating water. These chemicals control scaling and biological growth in the cooling tower and corrosion of the circulating water piping and heat exchanger tubes. The cooling tower will use sodium hypochlorite for biological growth control, sulfuric acid for pH control, and a corrosion and scale inhibitor.

The plant process wastewater will not need to be treated, because the water quality is acceptable to be sent to the OCSD sanitary sewer system in East Miraloma Avenue. The process wastewater is basically concentrated GWRS water that has been cycled up as part of the RO reject and cooling tower evaporation processes.

Table 6.5-3, shows the major wastewater streams and the resultant wastewater for disposal. Refer to Figure 3-6, Water Balance Diagram for flow rates. Wastewater from the CPP will consist mainly of chiller system cooling tower blowdown, which is non-hazardous (see Table 6.5-11). This discharge will also be well within the discharge limitations specified by the OCSD under Class VI wastewater discharge permit as noted in Table 6.5-11.

The average daily wastewater generation rate that will require disposal is expected to be 78,720 gpd or approximately 78 gpm, the maximum daily wastewater volume will be 87,360 gpd (82 gpm) and the maximum hourly wastewater volume will be 0.005 million gallons.

6.5.3.12 Plant Drains

The CPP project will produce various wastewater streams during the course of normal plant operation. The various wastewater streams are anticipated to be as follows:

- Chilled water system cooling tower blowdown
- Water treatment plant RO reject water
- Stormwater from plant equipment containment areas
- CTG water wash waste
- Oily wastes from equipment drains

Chilled water system cooling tower blowdown and RO reject wastewater streams will be collected and drained by gravity to the plant common wastewater lift station. The lift station will contain redundant submersible pumps that will transfer the wastewater to the OCSD sanitary sewer system.

Plant equipment areas that may contain oily residue by design (such as power transformer containment areas, lube oil storage tank containment areas, and fuel gas filter separator

TABLE 6.5-11
EXPECTED PLANT WASTEWATER QUALITY

			RO Reject		HVAC Cooling Tower Blowdown		Plant Waste Discharge	
No.	Constituent	Units	Avg.	Max.	Avg.	Max.	Avg.	Max.
1	Turbidity	NTU	0.8	1.2	2.00	3	1.03	1.58
2	Total coliform bacteria	cfu	1.68	184			2.15	242.34
3	Total Nitrogen	mg/L	10.4	18.4	26.00	46	13.33	24.23
4	Ammonia Nitrogen, NH_4-N	mg/L	5.8	9.4	14.50	23.5	7.44	12.38
5	Nitrate Nitrogen, NO_3-N	mg/L	0.8	10.12	2.00	25.3	1.03	13.33
6	Nitrite Nitrogen, NO_2-N	mg/L	0.52	0.52	1.30	1.3	0.67	0.68
7	Phosphate, PO_4-P	mg/L	0.08	1.6	0.20	4	0.10	2.11
8	Sulfate, SO_4	mg/L	7.12	10.2	17.80	25.5	9.13	13.43
9	Chloride, Cl	mg/L	28.32	37.2	70.80	93	36.31	49.00
10	Bicarbonate, HCO_3	mg/L	212.16	215.72	530.40	539.3	272.00	284.12
11	Fluoride, F	mg/L	0.08	0.12	0.20	0.3	0.10	0.16
12	Calcium, Ca	mg/L	67.24	67.8	168.10	169.5	86.21	89.30
13	Magnesium, Mg	mg/L	0.52	0.72	1.30	1.8	0.67	0.95
14	Sodium, Na	mg/L	27.12	33.52	67.80	83.8	34.77	44.15
15	Potassium, K	mg/L	2.32	2.8	5.80	7	2.97	3.69
16	Silica, SiO_2	mg/L	2.72	3.88	6.80	9.7	3.49	5.11
17	Aluminum, Al	µg/L	39.6	164	99.00	410	50.77	216.00
18	Arsenic, As	µg/L	2.84	19.2	7.10	48	3.64	25.29
19	Antimony, Sb	µg/L	2.4	2.4	6.00	6	3.08	3.16
20	Barium, Ba	µg/L	0	0	0.00	0	0.00	0
21	Beryllium, Be	µg/L	0.4	0.4	1.00	1	0.51	0.53
22	Boron, B	mg/L	1.2	1.56	3.00	3.9	1.54	2.05
23	Cadmium, Cd	µg/L	0.4	0.4	1.00	1	0.51	0.53
24	Chromium, Cr	µg/L	0.64	4.4	1.60	11	0.82	5.80
25	Cobalt, Co	µg/L	0.88	8.8	2.20	22	1.13	11.59
26	Copper, Cu	µg/L	52.8	112	132.00	280	67.69	147.51
27	Cyanide, CN	µg/L	26	184	65.00	460	33.33	242.34
28	Iron, Fe	µg/L	13.2	56	33.00	140	16.92	73.76
29	Lead, Pb	µg/L	1.04	6.4	2.60	16	1.33	8.43

**TABLE 6.5-11 (CONTINUED)
EXPECTED PLANT WASTEWATER QUALITY**

			RO Reject		HVAC Cooling Tower Blowdown		Plant Waste Discharge	
No.	Constituent	Units	Avg.	Max.	Avg.	Max.	Avg.	Max.
30	Manganese, Mn	µg/L	2.92	36.8	7.30	92	3.74	48.47
31	Mercury, Hg	µg/L	0.2	0.2	0.50	0.5	0.26	0.26
32	Nickel, Ni	µg/L	0.4	0.4	1.00	1	0.51	0.53
33	Selenium, Se	µg/L	5.44	64	13.60	160	6.97	84.29
34	Silver, Ag	µg/L	0.72	6.4	1.80	16	0.92	8.43
35	Thallium	µg/L	0.4	0.4	1.00	1	0.51	0.53
36	Zinc, Zn	µg/L	20	20	50.00	50	25.64	26.34
37	Total Dissolved Solids, TDS	mg/L	261.36	297.04	653.40	742.6	335.08	391.22
38	Organic Nitrogen, N	mg/L					0.92	5.27
39	pH	--			7.5 – 8.0	7.5 – 8.0	8.5 – 9.0	8.5 – 9.0
40	Carbon Dioxide, CO_2	mg/L	0.44	0.44	1.5	1.6	0.56	0.58
41	Total Alkalinity, TA as $CaCO_3$	mg/L	173.90	176.82			222.95	232.88
42	Total Hardness, TH as $CaCO_3$	mg/L	170.24	172.46			218.25	227.14
	Cycles of concentration		4.0	4.0	10	10.0	5.1	5.3
	Plant RO system inflow	GPM	252	257				
	Plant RO system reject	GPM	63	64				
	Cooling Tower Makeup	GPM			148	174		
	Cooling Tower Blowdown	GPM			15	17		
	Plant inflow stream 1	GPM					400	432
	Plant waste discharge stream 12	GPM					78	82

containment areas) will be located within concrete spill-containment berms. The berms are used to contain an oil spill and also function to prevent the spread of a fire.

These types of outdoor containments will collect a small amount of stormwater and plant wash-down water. Drains from this type of equipment will gravity flow to a plant process wastewater oil-water separator. This oil-water separator will be a highly efficient corrugated plant interceptor (CPI) separator designed to remove oil residues down to 10 parts per million (ppm). After passing through the oil-water separator, the wastewater will flow to the plant wastewater lift station for eventual transfer to the sanitary sewer system.

CTG water wash waste may contain detergents and/or solvents. This wastewater stream can be considered hazardous and will not be sent to the sanitary sewer system. Underground 2,000-gallon-capacity water wash tanks can accumulate up to approximately 10 water wash operations on each CTG. The underground tanks will be of fiberglass construction for long term corrosion protection and will be provided with secondary containment with leakage alarms.

6.5.3.13 Domestic/Sanitary Wastewater

A relatively small staff will operate and maintain the plant. Therefore, a relatively small amount of domestic sewage will be generated. Domestic wastewater will flow by gravity to the plant main wastewater lift station for eventual transfer to the OCSD sanitary sewer system.

6.5.3.14 Stormwater Runoff

The CPP will be designed to comply with the Water Quality Management Plan requirements for new development and significant redevelopment specified in the Orange County Drainage Area Management Plan and the COA Local Implementation Plan. The fundamental requirements specified in the Water Quality Management Plan include site design best management practices (BMPs) intended to minimize changes to the existing hydrology, structural source control BMPs to minimize or eliminate the exposure of pollutant sources to precipitation or runoff, and treatment control BMPs to reduce or remove pollutants that have become entrained in stormwater runoff. Stormwater from areas of the CPP not containing industrial activities (employee parking areas, switchyards, administration buildings, landscape areas, open space) will infiltrate or flow off the site to East Miraloma Avenue as sheet flow.

Stormwater from those portions of the CPP site that do contain industrial activities (generating equipment, chilling system cooling towers, material and equipment storage and laydown areas) will be collected in catch basins, and flow through an underground piping system. This system will discharge to an underground vault-type multi-chamber pretreatment device that will remove sediment, coarse materials, and oil from the water. This BMP will treat the water quality storm or "first flush." As a rule of thumb, about 85 percent of all storms that occur are these smaller, more frequent storms that produce less than an inch of rain in 24 hours. These water quality storms are the target for treatment.

The soils underlying the CPP site are suitable for infiltration of stormwater. Therefore, following pretreatment for sediment and oil removal, the stormwater will flow to an onsite underground vault to allow for infiltration. This chamber is filled with rock and has an open bottom for discharging runoff directly to the ground. This underground vault has been sized to percolate the 25-year storm event into the ground. The infiltration vault will prevent discharges of stormwater runoff from the industrial areas of the site. The infiltration vault will include an overflow outlet to allow for stormwater in excess of the 25-year storm event to flow to the existing municipal storm drain system in East Miraloma Avenue.

The site will be graded and sloped to allow sheet flow or catch basins with underground piping to the south end of the site where the collection vaults will be located. The COA Department of Public Works specifies the following criteria for site grading:

- Fine graded commercial/industrial site (sheet flow away from buildings) 1 percent minimum; it shall drain away from the buildings and pads at 1 percent minimum
- Concrete gutter/swale in earth areas, 0.5 percent minimum
- Concrete gutter/swale in paved area, 0.2 percent to 0.4 percent minimum

The assumptions made in the design of the stormwater management facilities are:

- According to Exhibit C of the COA Storm Drainage Manual, the design storm frequency for this site shall be the 25-year storm, since the site is tributary to the Santa Ana River watershed.
- Figure B-3 from the Orange County Hydrology Manual *(Mean Precipitation Intensities for Nonmountainous Areas)* was used to obtain the rainfall intensities (in inches/hour) used in the Rational Method Equation to determine the design storm runoff rates.
- Figure D-1 from the Orange County Hydrology Manual *(Time of Concentration Nomograph for Initial Subarea)* was used to obtain the time of concentration (in minutes) used in the Rational Method Equation to determine the design storm runoff rates.
- The runoff coefficient used in the Rational Method Equation is 0.90, since the site is entirely impervious. It is presumed that after development of the power plant site, the runoff coefficient will remain 0.90.
- The Water Quality volume for the site was determined using the Basin Sizer program. Basin Sizer is a software tool developed for the California Department of Transportation. The software computes water quality volumes (WQVs) and water quality flows (WQFs) by methods approved for Caltrans used to meet the requirements of the State Water

Quality Control Board (SWQCB). Basin Sizer uses data from more than 1,000 California rainfall stations, and allows computation of the depth of rain that falls over a drainage area.

- Equation 1 and 2 on page B-68 of the Caltrans Storm Water Quality Handbooks were used to size the multi-chamber treatment train BMP.

The size of the Stormwater Infiltration Chamber was estimated as follows:

- The area of the site which falls inside the perimeter wall was computed (372,874 ft^2).
- The 25-year storm event depth of rainfall was computed for the site by using Figure B-1 of the Orange County Hydrology Manual (Mean Precipitation Depths for Nonmountainous Areas). The time of concentration for the site was assumed at 30 minutes, and the corresponding depth is 0.875 inches (0.073 ft.).

The area of the site inside the perimeter wall is 372,874 ft2. The rainfall depth is 0.073 ft.

Area x Depth = Volume. 372,874 ft2 x 0.073 ft = 27,183 ft3

This volume was used with Equation 2 on Page B-20 of the Caltrans Storm Water Quality Handbooks – Project Planning and Design Guide, “Estimate the area required for an Infiltration Basin.”

$A_{est} = (C \times SF \times WQV)/(k_{est} \times t)$

A_{est}	=	estimated area of invert of Infiltration Basin (ft^2)
C	=	conversion factor (12 for inches to ft)
SF	=	safety factor of 2
WQV	=	Water Quality Volume (the computed 25-year storm volume rather than the WQV is used here).
k_{est}	=	estimated infiltration rate (6 inches/hour)
t	=	drawdown time (48 hours)
A_{est}	=	2,265 ft^2

The area of the infiltration chamber has been sized at 25 ft x 90 ft, or, 2,250 ft^2.

Because the CPP is not a steam electric generating facility, it is not required to obtain coverage under the General Industrial Stormwater Permit[1]. As the percolation chamber is sized to capture 85 percent of the annual stormwater runoff from the industrial areas of the

[1] State Water Resources Control Board (SWRCB) Water Quality Order No. 97-03-DWQ, National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000001 (General Permit), Waste Discharge Requirements (WDRs) for Discharges of Stormwater Associated with Industrial Activities Excluding Construction Activities, Attachment 1.

site according to standards set in the "California Stormwater BMP Handbook" (California Stormwater Quality Association, 2003). The percolation chamber will also serve to manage peak stormwater runoff during the 100-year 24-hour storm event. The peak runoff for the developed conditions will not exceed the peak runoff rate of the existing conditions. Appendix K contains the stormwater calculations.

A Stormwater Pollution Prevention Plan is included in Appendix N. This plan will be implemented at the CPP site to control and minimize contamination of stormwater during the construction of the facility. The SWPPP will employ BMPs such as stabilized construction entrances, silt fencing, berms, hay bales, and detention basins to control runoff from all construction areas.

6.5.4 Effect of Project on Water Resources

6.5.4.1 Effect on Groundwater Basin Water Balance

The CPP will have an insignificant effect on the groundwater basin water balance. The primary source of water supply will be recycled water provided by the GWRS. In addition, the CPP site will be designed to minimize impervious cover and will infiltrate stormwater runoff following pretreatment.

6.5.4.2 Water Level Drawdown Effects

The project will have an insignificant effect on the water level drawdown in the Anaheim area as recycled water provided by the GWRS will be the primary water supply and stormwater will be infiltrated.

6.5.4.3 Water Quality Effects

The CPP will not affect the water quality of surface or groundwater resources. Process wastewater will be discharged to the sanitary sewer system and stormwater runoff from areas of industrial activity will be treated prior to infiltration.

6.5.4.4 Cumulative Effects

CPP site will be designed to minimize impervious cover and will infiltrate stormwater runoff following pretreatment facilitating additional recharge of groundwater with surface supplies, the use of groundwater by the CPP will not impact groundwater level or quality conditions.

6.5.5 Available Documents and Information

The geology and hydrogeology of the groundwater basins and sub-basins in the Orange County Groundwater Basin have been studied by the USGS, DWR, the U.S. Bureau of Reclamation, COA, and the OCWD. The project is located within the service area of the

COA. The COA and the OCWD monitor well facilities and have performed and commissioned groundwater studies in the project area. The COA and the OCWD annually collect water quality and water level data and other water-related information for the project area and develop estimates of groundwater pumpage and depth and elevation contour maps. The available historic records document long-term hydrologic conditions in the area.

6.5.6 Mitigation Measures

In relation to water resources, mitigation measures for the project would be applied in situations where the project has or would have an unmitigated significant impact. As discussed above, the evaluation of water resources impacts considered both the occurrence and the quality of water in the area. For the occurrence of groundwater in the area, the project will have no significant impact on the depth to water in the aquifer, or water resources in the area as a result of the use of recycled water supplied by the GWRS and disposal of wastewater to the sanitary sewer. Wastewater disposed to the WWTP will comply with pretreatment requirements and will be of sufficient quality for reuse following treatment at the WWTP. Thus, no mitigation is required for water resources.

The analysis of the effect of the CPP on water resources indicates that the project will have no significant effect on the water resources in the Anaheim area. Implementation of the following Conditions of Certification (COC) will help ensure that the project conforms with the LORS as identified in Section 6.5.8, Water Related Laws, Ordinances, Regulations and Standards.

SOIL AND WATER 1: Water Quality Management Plan. Prior to obtaining any clearing, grading or excavating activities associated with project construction, and as required by COA Municipal Code (Title 10 Public Service and Utilities, Chapter 10.09), the applicant will develop and implement a Water Quality Management Plan (WQMP).

***Verification*.** At least 30 days prior to the start of construction, the applicant will submit a draft WQMP to the Compliance Project Manager (CPM) for review and comment. Two weeks prior to the start of construction, the applicant will submit to the CPM a copy of the final WQMP for review and approval. The final WQMP shall contain all the elements of the draft WQMP with changes made to address staff comments and the final design of the project. Approval of the plan by the CPM must be received prior to the initiation of any clearing, grading or excavation activities associated with project construction.

SOIL AND WATER 2: Stormwater Pollution Prevention Plan. Prior to beginning any clearing, grading or excavating activities associated with project construction, and as required by the General Construction Activity Stormwater Permit, the applicant will develop and implement a SWPPP prepared under the requirements of the General Construction Activity Stormwater Permit.

***Verification*.** At least 30 days prior to the start of construction, the applicant will submit a draft construction phase SWPPP to the CPM for review and comment. Two weeks prior to the start of construction, the applicant will submit to the CPM a copy of the final SWPPP for review and approval. The final SWPPP shall contain all the elements of the draft plan with changes made to address staff comments and the final design of the project. Approval of the plan by the CPM must be received prior to the initiation of any clearing, grading or excavation activities associated with project construction.

6.5.7 Applicable LORS

The design, construction, and operation of the CPP will be in accordance with all federal, state, county, and local LORS applicable to water resources. Applicable LORS are discussed in this section and are summarized in Table 6.5-12.

6.5.7.1 Federal Authorities and Administering Agencies

6.5.7.1.1 Clean Water Act of 1977 (including 1987 amendments) § 402; 33 USC § 1342; 40 CFR Parts 122 – 136. The Clean Water Act (CWA) requires a NPDES permit for any discharge of pollutants from a point source to waters of the U.S. This law and its regulations apply to stormwater and other discharges into waters of the U.S. The CWA requires compliance with a general construction activities permit for the discharge of stormwater from construction sites disturbing one acre or more. This federal permit requirement is administered by the SWRCB.

Construction activities at the project site will be performed in accordance with a SWPPP and associated monitoring plan that is required in accordance with the NPDES General Permit for Stormwater Discharges Associated with Construction Activities issued by the SWRCB. The SWPPP will include control measures including BMPs to reduce erosion and sedimentation as well as other pollutants associated with vehicle maintenance, material storage and handling, and other activities occurring at the project site. The administering agencies for the above authority are the Santa Ana Regional Water Quality Control Board (RWQCB) and the SWRCB.

6.5.7.1.2 Clean Water Act § 311; 33 USC § 1342; 40 CFR Parts 122 – 136. This portion of the CWA requires reporting of any prohibited discharge of oil or hazardous substance. The project will conform by proper management of oils and hazardous materials both during construction and operation. The administering agency is the Santa Ana RWQCB and the California Department of Toxic Substances Control (DTSC).

6.5.7.2 State Authorities and Administering Agencies

6.5.7.2.1 Water Code Section 13552.6. This portion of the California Water Code (CWC) relates to the use of potable domestic water for power plant cooling. Although the CPP does

TABLE 6.5-12
APPLICABLE LORS

LORS	Applicability	Conformance and Timing
Federal		
CWA § 402; 33 USC § 1342; 40 CFR Parts 110, 112, 116	Requires NPDES Permits for construction and industrial stormwater discharges. Requires preparation of a SWPPP and Monitoring Program.	The CPP does not incorporate a steam cycle, so coverage under the NPDES industrial stormwater permit is not required. NOI for coverage under NPDES construction stormwater permit will be filed prior to construction and plant operation. A SWPPP will also be prepared for construction activity.
CWA § 311; 33 USC § 1342; 40 CFR Parts 122-136	Requires reporting of any prohibited discharge of oil or hazardous substance.	The project will conform by proper management of oils and hazardous substances both during construction and operation.
State		
CWC § 13552.6	Use of potable domestic water for cooling towers is unreasonable use if suitable recycled water is available.	Project does not utilize a steam cycle. Project has determined that recycled water otherwise discharged to the ocean is available via the GWRS in the vicinity of the project site and will be the primary process water supply. Municipal supply will be used for backup.
California Constitution Article 10 § 2	Avoid the waste or unreasonable uses of water. Regulates methods of use and diversion of water.	Project includes appropriate water conservation measures, both during construction and operation, and will utilize recycled water otherwise discharged to the ocean provided by the GWRS as the primary source of water supply. The GWRS is being developed, in part, to provide industrial water supply.
SWRCB, Resolution No. 75-58	Addresses sources and use of cooling water supplies for power plants which depend on inland waters for cooling and in areas subject to general water shortages.	Although the CPP does not incorporate a steam cycle, the Project has determined that recycled water is available from the GWRS in the vicinity of the project site and will be used as the primary industrial water supply. This water supply is consistent with the spirit of Resolution No. 75-58.

TABLE 6.5-12 (CONTINUED)
APPLICABLE LORS

LORS	Applicability	Conformance and Timing
Porter-Cologne Water Quality Act of 1972; CWC § 13000-14957, Division 7, Water Quality	Requires SWRCB and RWQCBs to adopt water quality initiatives to protect state waters. Those criteria include identification of beneficial uses, narrative and numerical water quality standards.	Project will conform to applicable state qualitative and quantitative water standards prior to plant operation. Use of water will be consistent with designated beneficial uses and wastewater will be discharged to the sanitary sewer.
Title 22, CCR	Addresses the use of recycled water for cooling equipment.	Project has determined that recycled water is available from the GWRS in the vicinity of the project site. Recycled water meeting the requirements of Title 22 will be used as the primary industrial water supply at the project site.
The Safe Drinking Water and Toxic Enforcement Act of 1986 (proposition 65), Health and Safety Code 25241.5 et seq.	Prohibits the discharge or release of chemicals known to cause cancer or reproductive toxicity into drinking water sources.	Project will conform to all state water quality standards, both qualitative and quantitative. All sanitary and industrial wastewater will be discharged to the sanitary sewer operated by the OCSD.
CWC Section 461	Encourages the conservation of water resources and the maximum reuse of wastewater, particularly in areas where water is in short supply.	Project has determined that recycled water is available in sufficient quantity and quality via the GWRS in the vicinity of the project site. Recycled water will be used as the primary process water supply at the site.
California Public Resources Code § 25523(a); 20 CCR §§ 1752, 1752.5, 2300 – 2309, and Chapter 2 Subchapter 5, Article 1, Appendix B, Part (1)	The code provides for the inclusion of requirements in the CEC's decision on an AFC to assure protection of environmental quality and requires submission of information to the CEC concerning proposed water resources and water quality protection.	The CPP will comply with the requirements of the CEC to assure protection of water resources.
CWC §§ 13271 – 13272; 23 CCR §§ 2250 – 2260	Reporting of releases of reportable quantities of hazardous substances or sewage and releases of specified quantities of oil or petroleum products.	Project will conform to all State water quality standards, both qualitative and quantitative.
CEQA, Public Resources Code § 21000 et seq.; CEQA Guidelines, 14 CCR § 15000 et seq.; Appendix G	The CEQA Guidelines (Appendix G) contain definitions of projects which can be considered to cause significant impacts to water resources.	The CPP will comply with the requirements of the CEC to assure protection of water resources.

TABLE 6.5-12 (CONTINUED)
APPLICABLE LORS

LORS	Applicability	Conformance and Timing
Local		
The COA Municipal Code (Title 10 Public Service and Utilities, Chapter 10.09.180)	Requires new development and significant redevelopment projects to prepare a Water Quality Management Plan (WQMP) that identifies design, operation, and maintenance features to manage runoff water quality from the site.	The CPP will comply with the COA Municipal Code by preparing and implementing a WQMP for the project.
Orange County Sanitation District Ordinance No. OCSD-31 (2007)	Specifies discharge limitations for industrial wastewater discharges to the sanitary sewer.	The CPP will comply with OCSD Ordinance by applying for coverage under a Class II Wastewater Discharge Permit and maintaining discharges within the specified discharge limitations.

Notes:
CEQA = California Environmental Quality Act of 1970
NOI = Notice of Intention
NPDES = National Pollutant Discharge Elimination System
ROW = right-of-way
RWQCB = Regional Water Quality Control Boards
SWRCB = State Water Resources Control Board
USC = U.S. Code

not incorporate a steam cycle, recycled water that would otherwise be discharged to the ocean will be provided by the GWRS as the primary water supply. SWRCB Resolution 75-58 addresses this issue and the administering agency is the Santa Ana RWQCB (see Table 6.5-12).

6.5.7.2.2 State Water Resources Control Board, Resolution 75-58 (June 18, 1975). The SWRCB prescribes state water policy on the use and disposal of inland water used for power plant cooling. A discussion of this resolution as it applies to the project is presented in Section 6.5.3.1, Project Water Resources Plan, of this AFC. The administering agencies for this resolution are the SWRCB and the Santa Ana RWQCB.

6.5.7.2.3 California Porter-Cologne Water Quality Control Act 1998; California Water Code § 13000 – 14957; Division 7, Water Quality. The Porter-Cologne Water Quality Control Act authorizes the state to develop and implement a statewide program for the control of the quality of all waters of the state. The Act establishes the SWRCB and the nine RWQCBs as the principal state agencies with primary responsibility for the coordination and control of water quality. Under § 13172, siting, operation, and closure of waste disposal sites are regulated. The SWRCB requires classification of the waste and the disposal site. Discharges of waste must comply with the groundwater protection and monitoring requirements of the Resource Conservation and Recovery Act of 1976 (RCRA), as amended (42 U.S. Code [USC] Section 6901 et seq.), and any federal acts which amend or supplement RCRA, together with any more stringent requirements necessary to implement this revision or Article 9.5 (commencing with Section 25208) of Chapter 6.5 of Division 20 of the Health and Safety Code. The project will comply with the regulations set forth in this Act.

The administering agencies for the above authority are the CEC, SWRCB, and the Santa Ana RWQCB.

6.5.7.2.4 Title 22, CCR Division 4, Chapter 3. This regulation requires maximum use of reclaimed water in the satisfaction of requirements for beneficial uses of water. The project satisfies this requirement in that it will use recycled water available from the GWRS as the primary industrial water supply. The administering agency is the Santa Ana RWQCB.

6.5.7.2.5 California Public Resources Code § 25523(a); 20 CCR §§ 1752, 1752.5, 2300 – 2309 and Chapter 2 Subchapter 5 Article 1, Appendix B, Part (1). The code provides for the inclusion of requirements in the CEC's decision on an AFC to assure protection of environmental quality and requires submission of information to the CEC concerning proposed water resources and water quality protection. The administering agency for the above authority is the CEC.

6.5.7.2.6 California Water Code §§ 13271 – 13272; 23 CCR §§ 2250 – 2260. These code sections require reporting of releases of specified reportable quantities of hazardous substances or sewage (§ 13272), when the release is into, or where it will likely discharge into, waters of the state. For releases into or threatening surface waters, a “hazardous substance” and its reportable quantities are those specified at 40 Code of Federal Regulations (CFR) § 116.5, pursuant to § 311(b)(2) of the CWA, 33 USC § 1321(b)(2). For releases into or threatening groundwater, a “hazardous substance” and its reportable quantities are those specified at 40 CFR § 116.5, pursuant to § 311(b)(2) of the CWA, 33 USC § 1321(b)(2). For releases into or threatening groundwater, a “hazardous substance” is any material listed as hazardous pursuant to the California Hazardous Waste Control Act, Health & Safety Code §§ 25100 – 2520.24, and the reportable quantities are those specified at 40 CFR Part 302. Although such releases are not anticipated, the project will comply with the reporting requirements.

The administering agencies for the above authority are the Santa Ana RWQCB and the California Office of Emergency Services.

6.5.7.2.7 **California Water Code § 13260 – 13269; 23 CCR Chapter 9.** The code requires the filing of a Report of Waste Discharge (ROWD) and provides for the issuance of Waste Discharge Requirements (WDRs) with respect to the discharge of any waste that can affect the quality of the waters of the state. The WDRs will serve to enforce the relevant water quality protection objectives of the Santa Ana Region Basin Plan and federal technology-based effluent standards applicable to the project. With respect to potential water pollution from construction activities, the WDRs may incorporate requirements based on the CWA § 402(p) and implementing regulations at 40 CFR Parts 122 seq., as administered by the Santa Ana RWQCB. The administering agency for the above authority is the Santa Ana RWQCB.

6.5.7.2.8 **California Environmental Quality Act, Public Resources Code § 21000 et seq.; CEQA Guidelines, 14 CCR § 15000 et seq.; Appendix G.** The California Environmental Quality Act (CEQA) Guidelines (Appendix G) contain definitions of projects that can be considered to cause significant unmitigated impacts to water resources. The project is not expected to cause significant impacts to water resources, as described in Section 6.5.2, Project Water and Wastewater Needs. The administering agency of the above authority is the CEC.

6.5.7.3 Local Authorities and Administering Agencies

The COA Municipal Code (Title 10 Public Service and Utilities, Chapter 10.09) requires new development and significant redevelopment projects to prepare a Water Quality Management Plan that identifies design and operation and maintenance features to manage runoff water quality from the site.

Orange County Sanitation District Ordinance No. OCSD-31 (2007) Specifies discharge limitations for industrial wastewater discharges to the sanitary sewer. The CPP will comply with the Orange County Sanitation District Ordinance by applying for coverage under Class II Wastewater Discharge Permit and by marinating discharges within the specified discharge limitations.

6.5.7.4 Industry Codes and Standards

With regards to water resources and the related project facilities, including pipelines, sewers and other facilities, all construction will be in compliance with the LORS mentioned in this report section or state and local building codes.

6.5.7.5 Agency Contacts and Permits

See Table 6.5-13 for agency contacts.

TABLE 6.5-13
AGENCY CONTACTS

Agency	Contact	Title	Telephone
California Regional Water Quality Control Board, Santa Ana Region	Michael Adackapara	Senior Water Resource Control Engineer	(951) 782-3238
City of Anaheim	Keith Linker	Principal Civil Engineer	(714) 765-6821
Orange County Sanitation District	Mike Murray	Permit Engineer	(714) 962-2411

The water-related permits that are required for the project are identified in Table 6.5-12. The timing for the preparation of each permit is noted in the table. These permits include:

- General Construction Activity Stormwater Permit. Notice of Intent to comply with this general permit to be prepared and submitted to the SWRCB at least two weeks prior to the start of project operation. Draft of SWPPP to be prepared and submitted to CPM at least 30 days prior to the start of construction for review and comment. A final plan to be submitted to the CPM no later than two weeks prior to the start of construction.
- Class II Industrial Wastewater Discharge Permit. Permit for disposal of industrial process wastewater to the sanitary sewer will be obtained from the Orange County Sanitation District and submitted to CPM at least 30 days prior to operation of the CPP.

6.5.8 References

Anaheim, City of. 2007. Website: www.anaheim.net.

December 13, 1994 Anaheim Municipal Code Title, 10 Public Service and Utilities, Chapter 10.09.180.

August 2005 Storm Drainage Manual for Public and Private Storm Drainage Facilities

2007 Department of Public Works – Subdivision Section. Grading Design Manual

California Department of Water Resources (DWR). 1967. Progress Report on Ground Water Geology of the Coastal Plain of Orange County.

2003. California's Groundwater. Department of Water Resources Bulletin 118-203.

2006. Supplemental Information to Bulletin 118-2003 – Individual Basin Descriptions. www.groundwater.water.ca.gov/bulletin118.

California Regional Water Quality Control Board, Santa Ana Region and United States Environmental Protection Agency Region IX. 2004. Order No. R8-2004-0062 (NPDES No. CA0110604) Orange County Sanitation District Reclamation Plant No. 1 and Treatment Plant No. 2.

California Regional Water Quality Control Board, Santa Ana Region. 1995. Water Quality Control Plan – Santa Ana Region.

California Stormwater Quality Association. 2003. California Stormwater Best Management Practice Handbook – Industrial and Commercial, January.

California Water Resources Control Board (State Water Board). 1997. Water Quality Order No. 97-03-DWQ, National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000001 (General Permit), Waste Discharge Requirements (WDRs) for Discharges of Stormwater Associated with Industrial Activities Excluding Construction Activities.

2007. Groundwater Replenishment System Website: http://www.gwrsystem.com/

California Department of Transportation (Caltrans). May 2007. Storm Water Quality Handbooks – Project Planning and Design Guide.

Orange, County of. January 1996 Local Drainage Manual.

1986 Hydrology Manual.

Orange County Sanitation District. 2007. Website: www.ocsd.com.

Orange County Water District. 1999a. Engineer's Report on Ground Water Conditions, Water Supply and Basin Utilization in the Orange County Water District.

1999b. Master Plan Report.

2000. Engineer's Report on Ground Water Conditions. Water Supply and Basin Utilization in the Orange County Water District.

Sharp, Gwen. 2000. Orange County Water District. Written communication to Nuna Tersibashian. July 21, 2000.